

expensive, and very liable to disintegration. It approximates to the practice in Holland, where the groynes (*golfbrekers*) are usually about 500 feet long, spaced about 200 yards apart, and run at right angles to the shore. Golfbrekers are elaborate structures, in fact breakwaters in miniature. They are sometimes laid in the form of a mound reaching at the sea end a few feet above low-water level, and they rest upon fascines. The summit of the mound is basalt-pitched, with two pairs of rows of piling, one on either side; brick rubbish is placed over the fascines, and the basalt pitching laid on edge on the brick-work, the outer slopes being protected by dumping loose masses of stone pitching, either basalt or limestone. In some cases the crest of such groyne or breakwater is protected with concrete slabs instead of basalt pitching, the other portions of the section being as already described.

On the Brighton front groynes of the most formidable character have been erected. These are in effect massive stone piers faced with flint and with a hearting of mass concrete. The sides of these piers are mostly built at a batter of about 1 in 4, and sometimes they are laid out as promenades. At Dover a somewhat similar pier, 10 feet in width at the top, running almost level for about 100 feet, and then dipping at inclinations of 1 in 5, 1 in $6\frac{1}{2}$, and 1 in 8 down to low-water line, the total length of the pier being 289 feet, was built in 1860. At Hastings a concrete pier was built at the spot which was, at the date of its construction, the extreme east end of the foreshore of the Corporation. The result of this obstruction has been the arrest and impoundage of an enormous mass of shingle. Immediately to the east of the pier there is a sheer drop of about 25 feet, and the foreshore of sandstone rock is severely eroded. The east cliffs, purchased by the town for the purposes of a recreation ground, are now vigorously attacked by the sea, as they have no protection at their foot. Almost every winter great landslips take place there.

In the instances of these three towns, which are fairly typical, is demonstrated the vicious circle of original bad planning which has brought about so much destruction of the coast-line. The towns have gradually grown up to an arbitrary sea con-